



Utah Watershed Review

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Utah's Nonpoint-Source Water-Quality Newsletter

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Focus: Watershed Restoration Successes

Monitoring Data Supports Claims about Little Bear River Project

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The Little Bear River watershed located in Cache County, Utah is listed as a high priority watershed that is being impacted by non-point source pollution. The Little Bear River watershed covers 196,432 acres. Land use is approximately 70% range/forest, 19% irrigated cropland, 7% dry cropland and 4% other. Land ownership is 85% private, 11% national forests and 4% state lands. In 1990 the United States Department of Agriculture (USDA) provided the funds to establish a hydrologic unit area (HUA) planning effort to reduce non-point source pollution in the Little Bear River watershed. In 1990 the Little Bear River Steering Committee was formed to provide local leadership and oversight of the watershed planning project. A technical advisory committee consisting of local, state and

federal resource agencies and representatives from Utah State University was formed to assist the Little Bear River Steering Committee with the watershed assessment. The technical advisory committee completed a watershed assessment in 1992.

The watershed assessment identified high sediment loads from eroded stream banks, and high nutrient and coliform loads from numerous animal feeding operations. Cropland and pastures were also significant sources of nutrients in the Little Bear River Watershed. Having identified the major causes of non-point source pollution in the watershed, the local steering and technical advisory committees developed the following project objectives:

- Reduce erosion from streambanks and rangeland in critical areas

- Reduce nutrient and sediment loading from cropland, pasture, animal feeding operations and rangeland.

- Inform and educate landowners within the project boundary and the public of the need to improve and maintain water quality in the Little Bear River watershed.

- Monitor effectiveness of best management practices (BMPs) and evaluate benefits of water quality improvements.

The overall project goal was to encourage landowners to implement conservation practices and best management practices (BMPs) voluntarily to improve the quality of water in the Little Bear River Watershed. To make the voluntary approach successful, a diverse group of partners were invited to provide guidance and input into project priorities and activities. To date, 100 landowners have participated in the project. An important component of the project is the citizen volunteers. Local community groups have donated over 3000 hours to various projects.

In the early stages, watershed restoration focused on stream channel, bank restoration and grazing land improvements. (Table 1) In 1994, project attention turned to animal waste management systems (Table 1). The first animal waste system demonstration project was completed in 1991. By 1998, 36 waste management systems had been designed, and are currently in various stages of completion and implementation. From

Beaver River Effort Gaining Momentum

If you asked brothers Don and Dave Roberts 10 years ago if they could see themselves leading a water quality initiative in their watershed in Beaver County, Utah, they might have laughed in your face. But by the 1993 they had their application in to take part in the first Section 319-funded non-point source pollution control demonstration project along the Beaver River.

"We weren't too sure even when we started how well it would turn out," said Dave Roberts. "But we're happy with the results. The system has worked well."

The Beaver River watershed is located in Beaver County in southern Utah. This 500-square mile watershed is encircled by the Tushar Mountains on the east and bordered by the Mineral Mountains on the west. Land uses in the watershed include irrigated pasture and cropland, rangeland grazing, and limited timber production. Twelve percent of the watershed is privately owned,

See "Beaver" on page 3



See "LBR" on page 2

Contents

Watershed Review
Available on line....Page 2

Jordan River
Cleanup.....Page 4

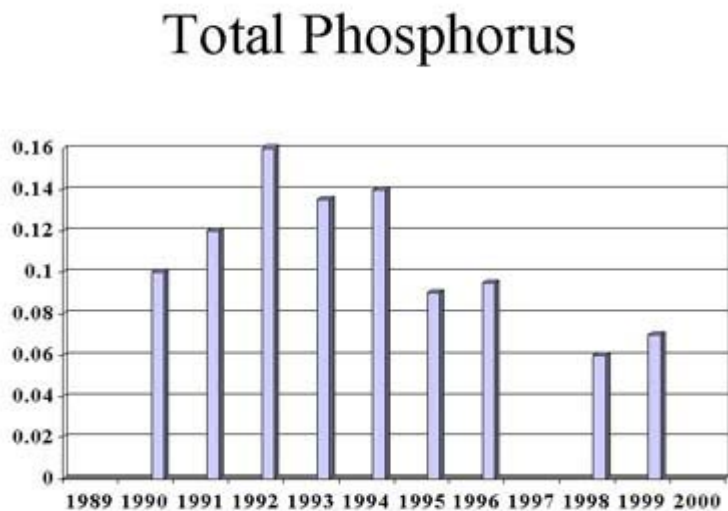
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1991 to 1996, \$1,507,000 in Section 319 funding had been allocated to the watershed effort.

Currently, six years after the initial watershed restoration efforts, we are seeing a measurable improvement in water quality. There is a downward trend of total phosphorus concentration in the watershed (Figure 1). As more animal waste management systems and BMPs are

implemented, the downward trend in total phosphorus is expected to continue. A total maximum daily load (TMDL) plan has been accepted by EPA which when implemented will further reduce nutrient loadings to the Little Bear River. The TMDL will target and reduce point source loads of phosphorus. By measuring the reduction of total phosphorus from point sources, the reduction of non-point source pollution can be determined to assess the success of the 319 funded projects.

Figure 1



The above chart shows concentration of total phosphorus in the watershed during the 1990s. Data is not available for 1997.

Table 1.
Best Management Practices Implemented in the Little Bear River Watershed.

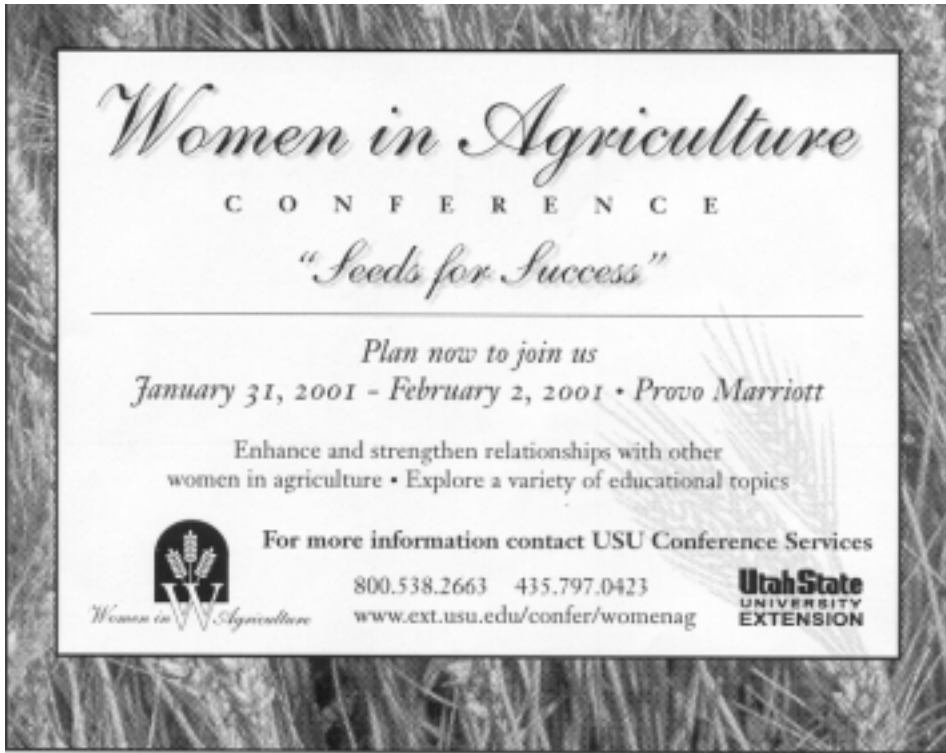
Best Management Practice	Amount Completed
Manure Storage Facilities	36 units
Composting Facility	1 unit
Brush Management and Seeding	4,000 acres
Fencing	149,025 feet
Stream Bank Protection	12,766 feet
Riparian Vegetation	28 acres
Stream Channel Stabilization	10,572 feet
Prescribed Grazing	30,000 acres

Watershed Review Going Electronic

Utah Watershed Review is now available on the World Wide Web. While issues of this publication have been posted on the Utah Department of Agriculture and foodweb site for the past years, those issues have not included most of the photographs and graphics that appear in the print version. Beginning with this issue, the on-line version will include web quality scanned versions of the photos and graphics.

Starting with this issue you can receive your copy of Utah Watershed Review automatically via E-mail. Simply E-mail us at jwilbur.state.ut.us and we will E-mail you with the web site url the day it is available. The on-line version is in Adobe Acrobat (pdf) format.

You can access the web site at any time at www.ag.state.ut.us then click on the water quality button. At the water quality page click on the picture of an issue of Utah Watershed Review. Then click on the name of the the issue in which you are interested.



Utah Watershed Review

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Beaver

continued from front



Don Roberts stands on the site of his new animal manure handling facility in 1994. During the years that have followed, the Roberts family has worked through glitches and growing pains until their system works well and runs efficiently today.

while 48 percent of the area is BLM and 40 percent is Forest Service land. While most of the land in the watershed is used for grazing, there are about 35 feedlots and dairies.

Dairy farmers have lived and worked along the Beaver River's banks and creeks that feed it for many years, using the flowing stream as a natural source for watering their cows.

Over the same years those cows gradually polluted the water as their waste drained into the river.

Today, a partnership between the Utah Division of Water Quality, Utah Department of Agriculture and Food, Beaver Soil Conservation District, Natural Resources Conservation Service, and area residents is cleaning up after cows and removing river sediment.

The four major streams of the watershed flow into the Beaver River, which in turn, empties into Minersville Reservoir. Minersville Reservoir is located 12 miles southwest of Beaver. Division of Water Quality monitoring of the Beaver River and Minersville Reservoir have identified a variety of problems ranging from high rates of sediment movement to exceptionally high amounts of phosphorus. Domestic livestock and wildlife have traditionally had unrestricted access to most of the Beaver River system throughout the four seasons.

The nearly 600 head of Holstein cows at the Roberts dairy were among the first to be managed for water quality in the watershed. The Roberts installed an animal manure management system that separates

manure into liquid and solids. Solids are dry-applied to fields and liquids are pumped from a pond onto adjacent alfalfa fields and other croplands.

"We had problems controlling the waste during winter and high runoff season," said Don Roberts. "What

we did with this project will help control it. There was just no way to control it before, because it was all liquid."

Now workers hose down concrete corrals. Manure is flushed to a holding area, and solids and liquids are separated.

"The liquid is sprinkled onto a field and pasture for fertilizer," Don Roberts explained. "Solids are separated out. They are composted. We use them for bedding and as compost for seeding and nurseries."

A total maximum daily load (TMDL) plan for the watershed has been approved. A coordinated resource management plan is in the final draft stages and will soon be approved. These documents will help focus the watershed restoration and management philosophies and activities along the Beaver River and its tributaries.

Since the time of the beginning of the Roberts' project, many other land owners have signed on for Section 319 projects in the area. From fiscal year 1993 through 1998, \$279,000 in EPA Section 319 funding has gone to the watershed for projects, techni-

cal assistance and watershed education. Approximately ten large landowners in the valley have participated. Both the number of participants and funding levels are expected to increase over the next few years as other watershed efforts in Utah wind down.

For more information on this watershed effort: Contact Lynn Kitchen, Natural Resources Conservation Service (435) 691-5092.



Many sites on the Beaver River still need improvement. In some areas, such as this site, extensive work is required. Other areas will require far less money and effort to fix the pollution problem. Now that the Comprehensive Resource Management plan is nearing completion, Section 319 funding and work should increase steadily over the next few years.

Water Quality Employees Clean Jordan



Dave Wham works from the river to attach ropes and hooks from shore to trash in the water. The shore crews then drag the items to land.

In order to help make the Jordan River a more user-friendly community resource, Utah Division of Water Quality (DWQ) employees cleaned up a section of the Jordan River through the northern end of Salt Lake City in late September. The event kicked off the Division's Jordan River stewardship program.

"We hope we improved the value of the river as a recreational resource for the people who live and work near this stretch of the river," said Shelly Quick, environmental scientist, Utah Division of Water Quality.

"We don't think we im-

proved the water quality. We wanted to improve the river as a community resource, said Don Ostler, director, DWQ."



Don Ostler, director, Utah division of Water Quality, participated with many of his employees in the afternoon clean up.

The cleanup is part of the Division's Jordan River Stewardship program that started in September. Riverton High School students started a volunteer water quality monitoring project at the same time in the south

end of the Salt Lake Valley. Students tested the water for pH levels, dissolved oxygen level and other chemical and biological parameters. Additional stewardship activities along the river will start in spring of 2001.



Near the Utah Department of Agriculture and Food building, beaver gnawing on trees is a problem. Following the cleanup, division employees wrapped several trees in chain link fence to protect them from nature's dam builders.



Harry Campbell (front) and Karin Tatum look more like shoppers than workers after helping pull this cart from the water.

The four-hour effort netted 17 shopping carts and an estimated 2,400 lbs. of garbage removed from the river, according to Bob Ewing, Utah Division of State Parks.

Division employees, with the help of a crew from the Utah Division of State Parks, used canoes to pull trash, shopping carts and tires from the river itself. Land-based crews picked up trash along the side of the river and trimmed bushes and tree branches along Jordan River Parkway trails.

As a part of the State Parks system, the river and trails in the area



More than 30 employees from the Utah Division of Water Quality and the Utah Division of State Parks participated in the clean up. The work area stretched from just south of North Temple to 700 North.